***CLASS COPY – DO NOT WRITE ON***

CW18: Translations

**Geometry**

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| **Directions: Plot the image of each figure, given the pre-image and translation, and label it using correct notation.** | | **C:\Users\kramos\Desktop\translations.PNG**Copy Figures a-c into your notebooks. **Write a definition for translation.** | |
| 1. C(0,-2); Translated vertically 1 unit up and horizontally 1 unit left. | 1. D(5,4); Translated horizontally 2 units right and vertically 5 units down. |
| 1. Triangle UTS, with points U(0,4)T(4,5)*S*(0,2); Translated horizontally 4 units left and vertically 6 units down. | 1. Triangle *IHG*, with points *I*(-5,-2) *H*(-3,-1)*G*(-5,-4); Translated horizontally 6 units right and vertically 5 units up. |
| **Directions:** Copy each graph into your notebook anddescribe the translation that took place. | | | |
| 5. Y(1,0) 🡪 Y(2,3) | | | 6. E(-3,0) 🡪 E’(3,4) |
| 7. T(3,-1), U(3,4), V(4,4), W(5,-1) 🡪  T’(1,0), U’(1,5), V’(2,5), W’(3,0) | | | 1. E(2,-1), F(5,2), G(3,-2) 🡪 E’(1,2), F’(4,5), G’(2,0) |
| Directions: Complete the statement using the description of the translation. | | | |
| 1. In the description below, points (0, 3) and (2, 5) are two vertices of a triangle.   If (0,3) translates to (0,0), then (2,5) translates to \_\_\_\_\_\_\_\_  If (0,3) translates to (1,2), then (2,5) translates to \_\_\_\_\_\_\_  If (0,3) translates to (-3,-2), then (2,5) translates to \_\_\_\_\_\_\_ | | | |
| 1. The equation for a line is y= x - 1. Graph the line. Graph and determine the equation for the line if the line were translated vertically 3 units up. | | | 1. The equation for a line is y=-0.5x + 6. Graph and determine what the equation for this line if the line were translated horizontally 10 units to the right. |
| 1. Describe the relationship between the original line and the translated line in problems 10 and 11. Use mathematical evidence to prove your claim. | | | |

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| 1. The equation for the line below is *y = ¾ x + 8*.   Write the equation for one possible line that is parallel to this line.   1. What will be true of all lines that are parallel to this line? | 1. The equation for the line below is *y = -2x - 5*.   Write the equation for one possible line that is parallel to this line.   1. What will be true of all lines that are parallel to this line? |

**Challenge Questions:**

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| Macintosh HD:Users:katleiahramos:Desktop:Screen Shot 2015-09-27 at 2.05.55 PM.png1. A student was given the image to the right and asked to translate it 4 units to the left and 5 units down.  The student said the new location of points Z, S, and B will be:  *Z’(-2,0)*  *S’(0,0)*  *B’(-3,-3)*  What are two possible strategies the student used to find the new location of the points?  What mistake do you think the student made, if any? |
| 2.  a) Create an algebratic rule for finding the new location of any point, *(x,y)*, given a translation of *a* units left or right, and *b* units up or down.  b) Test your rule on the following translations:  point (-4,-5) translated 5 units up and 6 units left.  Triange with verticies at (0,0), (2,4), and (3,1) translated 6 units down and 3 units right. |